E U R O P E A N S O U T H E R N O B S E R V A T O R Y

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1 INTRODUCTION

1.1 PURPOSE

The purpose of this manual is to help you install or upgrade the HP-UX 10.20, HP-UX 11.00 or Solaris 5.6 operating systems through to the point where the VLT Common Software itself can be installed.

Note that with this release, the only possible upgrade path is from the NOV2000 to the MAR2001 OS. See chapter 9 fo details.

1.2 SCOPE

This document covers the following topics in the following order:

- prerequisites - including prerequisite information which you must gather before starting the installation
- configuring the hardware
- installing and configuring the core operating system
- installing applications and patches
- network configuration - including several Ethernet and ATM connection configurations
- miscellaneous configuration items - not all applicable at all sites
- upgrading to the MAR2001 OS configuration (from the NOV2000 OS only[1])

This document assumes that you are familiar with basic system management activities for Unix systems. It is *not* a replacement for the respective proprietary operating system installation documentation.

1.3 TESTED CONFIGURATIONS

The procedure has been tested on the following models:

- HP-UX 10.20 installation: C100, J2240, J5000, B2000
- HP-UX 11.00 installation: C200, J5600, B2000
- Solaris 2.6 installation: Ultra 60 PCI

It may be valid for other models too; flexibility of install-time configurations is attempted in this document, but it is not feasible to support every conceivable combination of hardware and peripherals. Therefore you are strongly advised to read through this document thoroughly to familiarize yourself with the process and with any differences in your own setup.

1.4 REFERENCE DOCUMENTS

[1] VLT-MAN-ESO 17200-0981 --- VLT SW Problem Report & Change Request User Manual

[2] VLT-MAN-ESO 17200-0642 --- VLT Common Software Installation Manual

[3] VLT-MAN-ESO-13640-1707 --- FIERA Maintenance Manual

1. If your workstation is installed with any OS release other than NOV2000, the only available path is a full install -- be sure to backup any valuable data!

1.5 GLOSSARY

- ATM

  Asynchronous Transfer Mode. A form of digital transmission based on the transfer of units of information known as cells. It is suitable for the transmission of image, voice, video and data.

- DEV

  The set of workstations reserved for VLT development in ESO Garching.

- DNS

  Domain Name System. A distributed hierarchical system for resolving hostnames into IP addresses.

- LAN Emulation

  A protocol to make an ATM network look and behave like an Ethernet or Token Ring LAN. The LANE protocol defines a service interface for higher layer (the network layer) protocols that is identical to that of existing LANs; and encapsulates data sent across the ATM network in the appropriate LAN MAC packet format. LAN Emulation allows inter-operability between ATM and existing LAN technology.

- LECS

  LAN Emulation Configuration Server. The LECS is an entity that assigns individual LANE clients to particular ELANs by directing them to the LES that corresponds to the ELAN. There is logically one LECS per administrative domain, and it serves all ELANs within that domain.

- LES

  LAN Emulation Server. The LES implements the control function for a particular ELAN. There is only one LES per ELAN, and to belong to a particular ELAN means to have a control relationship with that ELAN's LES. Each LES is identified by a unique ATM address.

- NTP

  Network Time Protocol. A standard defined to facilitate accurate time synchronization across a network, either in hierarchical or peer-to-peer fashion.

- SunOS 5.6

- Solaris 2.6

  The names SunOS 5.6 and Solaris 2.6 refer to the same operating system. In this document we refer to it as Solaris 2.6, but the 'uname' command returns SunOS, so don't let this confuse you!

- VCM

  The set of worstations in the VLT Control Model in ESO Garching, a.k.a. "the fifth telescope". Basically, a replica of one of the telescopes in Paranal (minus the hardware itself!) down to workstation names and network layout.

1.6 STYLISTIC CONVENTIONS

VLT Common Software-specific abbreviations and acronyms are explained either in footnotes or in the glossary.

Courier font is used to indicate text displayed by, or to be entered into the system. Roman font is used to show displayed text, bold font for entered text, selected text or window buttons. Italicized text in angled brackets indicates place-holders or descriptions of fields. Unix prompts indicate the login of the person a command should be run as. These prompts end with a hash, dollar or percent sign to indicate root login id, Bourne shell or C-shell/T-C-shell shells respectively. e.g.:

```
root# pwd
/sbin/init.d
root# echo "<your_name>"
<your_name>
root#
```

This manual details the installation for three different OSs. Therefore it is important that you pay attention to the footnotes of headings, which detail for which OSs the section should be complete. If a footnote specifies *not* to complete the current section only for a particular OSs, then you must skip to the next section of the same or higher level, e.g. If section 1.2.3 is not to be complete for your installation, then you would skip to 1.2.4 if it exists, otherwise to 1.3 if it exists, otherwise to 2.

1.7 FEEDBACK

If you experience problems using this document, please let us know using one of the contact methods described in document “VLT SW ---- Problem Report & Change Request User Manual VLT-MAN-ESO 17200-0981”.

2 PREREQUISITES

Please use this section as a checklist: make sure you have compliant hardware, copies of the required computer media, and note down the information that will be required later on, some of which you will be able to decide yourself, and some of which you must decide in liaison with your users and / or network administrators.

2.1 PREREQUISITE HARDWARE

2.1.1 PREREQUISITE HARDWARE FOR HP-UX 10.20 AND HP-UX 11.00[1]

All system installations require the following:

- HP 9000 / 700 B, C or J class system with CDROM drive
- graphics-capable monitor and PS2 or USB keyboard and mouse or serial-based terminal[2].

C class systems require:

- at least 6 Gb of disk space (normally 2 + 4)

J class systems require:

- at least 18 Gb of internal disk space (normally 9 + 9)

J class systems for use as an instrument workstation additionally require:

- an additional disk for storing / data files.

B class system requirements are the same as for J class.

Systems requiring ATM networking additionally require:

- HP ATM A5513A, J2498A or J2499A adapter card.

HP Systems which will use exclusively ATM networking and will run HP-UX 10.20 additionally require:

- temporary use of a twisted-pair Ethernet cable and a TPE hub[3].

2.1.2 PREREQUISITE HARDWARE FOR Solaris 2.6[4]

All system installations require the following:

- Sun Sparc-based system with CDROM drive and at least 4 Gb hard disk space
- graphics-capable monitor with keyboard and mouse or serial-based terminal.

For systems requiring ATM networking, there are the following additional requirements:

- Sun ATM X1060A (Sbus) or Sun ATM X1157A (PCI) adapter card.

---

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 installations only.
2. Note that HIL keyboards and mice are not supported under HP-UX 11.00.
3. A bug in HP-UX 10.20 makes an Ethernet connection a prerequisite for use of PFS CDROM file systems, such as is used on the patches CDROM. This requirement is for about 15 minutes only.
4. Complete this section for Solaris 2.6 installations only.

2.2 PREREQUISITE COMPUTER MEDIA

2.2.1 PREREQUISITE COMPUTER MEDIA FOR HP-UX 10.20[1]

All system installations require the following:

- HP 9000 Series 700 B / C / J Class INSTALL and CORE OS (B3782-10456 3946)[2]
- HP 9000 Series 700 / 800 Support Plus June 2000 (B3782-10485)
- HP 9000 Series 7xx B-, C- & J Class APPLICATIONS March 2000 CD #1 (B3782-10459)
- HP 9000 Series 7xx B-, C- & J Class APPLICATIONS March 2000 CD #2 (B3782-10460)
- HP 9000 Series 7xx B-, C- & J Class APPLICATIONS March 2000 CD #3 (B3782-10461)
- ESO-VLT-VLTSW-NOV2000-HP-HPUX-1020-PATCHES-2000-0707-1257 CD

2.2.2 PREREQUISITE COMPUTER MEDIA FOR HP-UX 11.00[3]

All system installations require the following:

- HP 9000 Series 700 B / C / J Class INSTALL and CORE OS (B3782-10475 4006)[4]
- HP 9000 Series 700 / 800 Support Plus June 2000 (B3782-10486)
- HP 9000 Series 7xx B-, C- & J Class APPLICATIONS March 2000 CD #1 (B3782-10463)
- HP 9000 Series 7xx B-, C- & J Class APPLICATIONS March 2000 CD #2 (B3782-10464)
- ESO-VLT-VLTSW-MAR2001-HP-HPUX-1100-PATCHES-2001-0703-1400 CD

2.2.3 PREREQUISITE COMPUTER MEDIA FOR Solaris 2.6[5]

All system installations require the following:

- Solaris 2.6 (OS 5 / 98)
- ESO-VLT-VLTSW-NOV2000-SUN-SUNOS-56-PATCHES-2000-0850-1034 CD

Legacy “Themis” systems requiring ATM networking additionally require:

- ESO-VLT-VLTSW-NOV2000-SUN-PRODUCTS CD for legacy Themis systems

Other systems requiring ATM networking additionally require:

- SunATM 4.0 Update 1 (704-6802-10 Revision A of May 99)

1. Complete this section for HP-UX 10.20 only.
2. HP-UX CDROMs are labelled with part number, date code and possibly revision respectively.
3. Complete this section for HP-UX 11.00 only.
4. HP-UX CDROMs are labelled with part number, date code and possibly revision respectively.
5. Complete this section for Solaris 2.6 only.

2.3 PREREQUISITE DOCUMENTATION

This document is distributed as part of the VLT Common Software Documentation Kit. However, you should check for late changes and errata either by anonymous ftp (ftp.eso.org) or on the web (http://www.eso.org/projects/vlt/sw-dev/vltsw).

2.3.1 PREREQUISITE DOCUMENTATION FOR HP-UX 10.20

For systems with J2498A ATM adapters, there are the following requirements:

- ATM software license J28xxxxx AHN

2.3.2 PREREQUISITE DOCUMENTATION FOR HP-UX 11.00

There are no additional required documents for HP-UX 11.00.

2.3.3 PREREQUISITE DOCUMENTATION FOR Solaris 2.6

There are no additional required documents for Solaris 2.6.

2.4 PREREQUISITE INFORMATION

2.4.1 PREREQUISITE BASIC INFORMATION

- What is the system to be named?
- How many hard disks are attached?
- What are their SCSI ids?
- What is the SCSI id of the disk you wish to use to install the operating system on?
- What is the SCSI id if the CDROM?
- How much physical memory does the system have?
- In what geographical area will the machine be located?
- Is the system to remain at ESO? If yes, then at ESO Headquarters Garching? If yes, then in DEV, VCM, or elsewhere?

2.4.2 PREREQUISITE BASIC INFORMATION HINTS FOR HP-UX 10.20 AND HP-UX 11.00[1]

- If the system already has HP-UX installed then you can display a list of attached devices with SCSI IDs with the command:

  `ioscan -f`

- Similarly, the following command will give information about the size of a disk:

  `diskinfo <raw_device_file>`

- If the system already has HP-UX installed and the root disk uses LVM, then determine the root volume group with the command:

  `bdf /`

  and then to determine the physical volume name, which includes the SCSI id, use:

  `vgdisplay -v <`*`root_volume_group`*`>`

- To determine the amount of physical memory, use:

  `dmesg | grep Physical`

2.4.3 PREREQUISITE BASIC INFORMATION HINTS FOR Solaris 2.6[2]

- If the system already has Solaris 2.6 installed then you can display a list of attached devices with SCSI IDs with the command:

1. This section is applicable for HP-UX 10.20 and HP-UX 11.00 only.
2. This section is applicable for Solaris 2.6 only.

```
prtconf
```

- Similarly, the following command will give information about the size of a disk:

```
format
<select each disk in turn>
partition
print
<CTRL-D>
```

- To determine the amount of physical memory, use:

```
dmesg | grep -i avail
```

- The initial booting from CDROM is most easily accomplished if the SCSI id of the CDROM is 6.

2.4.4 PREREQUISITE BASIC INFORMATION HINTS FOR GARCHING

- VCM machines have their time zone set to UTC offset 0.

2.4.5 PREREQUISITE NETWORK INFORMATION

- Is the machine to be attached to a network?
- If the machine is to be attached to a network will the connection be with Ethernet, or ATM, or both?
- If the machine is to use an ATM connection, will it be in ELAN or Classical IP configuration?
- If it will use ATM in ELAN configuration, will ATM be the *only* network connection?
- If it will use ATM in ELAN configuration, what is the LEC Selector?
- If it will use ATM in Classical IP configuration, will it be in 'Back to Back' configuration and what is the IP address of the system with which it will be connected?
- What will be the machine's IP address on each interface?
- What are the subnet masks for the networks on each interface?
- If there is a default gateway available then what is its name and IP address?
- If the system will use DNS, what is the machine's DNS domain name and what are the DNS server IP addresses and hostnames?
- If there is an NTP server available on the network, what is its name and IP address?

2.4.6 PREREQUISITE NETWORK INFORMATION HINTS FOR GARCHING

- All machines are connected to the network
- Only some VCM machines have ATM connections
- 'Subnet numbers' are used as LEC Selectors
- In VCM, the second and third character (e.g. 'tc', 'g0') are used as the ELAN name
- IP addresses on Ethernet are assigned by OSC / Networks

- IP addresses on ATM are assigned by Erik Allaert
- Default gateways outside VCM are <*network_address*>.199
- Default gateways on ATM vary; see Erik Allaert
- Default gateway names can be determined by reverse-lookup with nslookup
- DNS domain is hq.eso.org.
- DNS servers are 134.171.56.56 and 134.171.8.2 (in that order)
- For DEV systems te13 is an NTP server
- For VCM systems wg0acc is an NTP server

2.4.7 DISK LAYOUT FOR HP-UX 10.20[1]

As stated in the introduction, this document cannot take into account every plausible hardware configuration, and this particularly applies to disk partitioning: the values in the following tables are just recommendations. Bear in mind that depending on your local requirements you may have to (or want to) make adjustments to the partitions and their sizes.

Particularly worth noting is that C class systems with only just 2 and 4 Gb internal disks do not have enough room for either the whole VLT software or the whole OS on the 2Gb disk. If you are forced to use this configuration, then it may be possible to use 3 of the 4 Gb on the 4 Gb disk for the OS, and the remaining space on that disk for /vltdata. Your mileage may vary, so plan ahead.

Note: This table continues on the next page.

disk	filesystem	Recommendation[a]	Your system
1	/	120 Mb	
1	/stand	100 Mb	
1	(swap)	512 Mb	
1	/opt	for C class 800 Mb otherwise 1000 Mb	
1	/tmp	64 Mb	
1	/usr	600 Mb	
1	/var	for C class 600 Mb otherwise 1000 Mb	
1	(unallocated)	if 1000 Mb remains 1000 Mb otherwise <*remaining_space*>	
1	/diska	<*remaining_space*>	
2	(secondary swap)	2 * <*system_memory*> - 512 Mb	
2	/vlt	for ESO/DEV 3000 for J class 2500 Mb for C class 0 Mb	
2	/vltdata	for J class 1000 Mb for C class 0 Mb	
2	/data	for instrument WS 0 Mb for J class <*remaining_space*>[b] for C class 0 Mb	

1. These recommendations are applicable for HP-UX 10.20 only.

2	/diskb	for instr. WS <*remaining_space*> for J class 0 Mb for C class <*remaining_space*>	
3	/data	for instr. WS <*remaining_space*>	

a. if more than one recommendation applies, select the first.
b. If this is not a multiple of the extent size it will be rounded up which will generate two warnings. You must then decrease the size by the extent size.

2.4.8 DISK LAYOUT FOR HP-UX 11.00[1]

As stated in the introduction, this document cannot take into account every plausible hardware configuration, and this particularly applies to disk partitioning: the values in the following tables are just recommendations. Bear in mind that depending on your local requirements you may have to (or want to) make adjustments to the partitions and their sizes.

Particularly worth noting is that C class systems with only just 2 and 4 Gb internal disks do not have enough room for either the whole VLT software or the whole OS on the 2Gb disk. If you are forced to use this configuration, then it may be possible to use 3 of the 4 Gb on the 4 Gb disk for the OS, and the remaining space on that disk for /vltdata. Your mileage may vary, so plan ahead.

Note: This table continues on the next page.

disk	filesystem	Recommendation[a]	Your system
1	/stand	100 Mb	
1	(swap)	<*same_as_memory*>	
1	/	150 Mb	
1	/tmp	80 Mb	
1	/opt	for C class 800 Mb otherwise 1000 Mb	
1	/usr	600 Mb	
1	/var	for C class 600 Mb otherwise 1000 Mb	
1	(unallocated)	if 1000 Mb remains 1000 Mb otherwise <*remaining_space*>	
1	/diska	<*remaining_space*>	
2	(secondary swap)	<*same_as_memory*>	
2	/vlt	for ESO/DEV 3000 Mb for J and B class 2500 Mb for C class 0 Mb	
2	/vltdata	for J and B class 1000 Mb for C class 0 Mb	

1. These recommendations are applicable for HP-UX 11.00 only.

2	/data	for instrument WS 0 Mb for J and B class <*remaining_space*>[b] for C class 0 Mb	
2	/diskb	for instr. WS <*remaining_space*> for J and B class 0 Mb for C class <*remaining_space*>	
3	/data	for instr. WS <*remaining_space*>	

a. if more than one recommendation applies, select the first.
b. If this is not a multiple of the extent size it will be rounded up which will generate two warnings. You must then decrease the size by the extent size.

2.4.9 DISK LAYOUT FOR Solaris 2.6[1]

As stated in the introduction, this document cannot take into account every plausible hardware configuration, and this particularly applies to disk partitioning: the values in the following tables are just recommendations. Bear in mind that depending on your local requirements you may have to (or want to) make adjustments to the partitions and their sizes.

Note: FIERA uses /export/home rather than /diska. Please, refer to VLT-MAN-ESO-13640-1707 for details.

disk	filesystem	Recommendation	Your system
1	/	160 Mb	
1	/var	for ESO/DEV 250 Mb otherwise 160 Mb	
1	(swap)	if 2 disks, <system_memory> if 1 disk, 2 * <*system_memory*>	
1	/opt	260 Mb	
1	/usr	for ESO/DEV 1000 Mb otherwise 600 Mb	
1	(unallocated)	for ESO/DEV <10% of remaining space>	
1	/diska	<remaining space>	
2	(swap)	if 1 disk, 0 Mb if 2 disks, <*system_memory*>	
2	/vlt	for ESO/DEV 3000 Mb otherwise 1500 Mb	
2	/vltdata	512 Mb	
2	/data	<remaining_space>	

1. These recommendations are applicable for Solairs 2.6 only.

3 CONFIGURING THE HARDWARE

3.1 ATM[1]

Install one of the supported ATM adapters as described in the adapter documentation.

3.2 PERIPHERALS

Remember to terminate any SCSI connectors, and to use terminators appropriate to the SCSI bus type (SCSI II, Ultra-SCSI, LVD-SCSI, etc.)

3.3 CONSOLE

If you want to use a serial terminal as a console, then connect a ‘straight’ serial cable to the new machine’s serial port #1 or #A from the terminal’s data port #1.

If using an HP terminal then you may need to reset it by holding down the ‘**D**’ key while powering it on.

If you want to use a serial communication program on another system to access the text console, then connect a ‘crossed’ serial cable to the new machine’s serial port #1 or #A from the other machine’s serial port #2 or #B.

If the other system is an HP, then run the command:

```
other_system$ kermit -l /dev/tty1p0 -b 9600
```

If the other system us a Sun, then run the command:

```
other_system$ tip -9600 /dev/cua/b
```

If the monitor and keyboard are to be removed from a Sun system prior to reinstallation, which might be the case if the graphics card has to be removed to free a slot for an SBus ATM card, then halt the machine by pressing **STOP-A** and then enter the commands:

```
ok setenv output-device ttya
ok setenv input-device ttya
ok setenv ttya-ignore-cd true
ok setenv tpe-link-test true
```

1. If your system does not have an ATM board skip this section.

4 INSTALLING THE CORE OPERATING SYSTEM

4.1 BOOTING HP-UX 10.20 AND HP-UX 11.00[1]

Insert the 'INSTALL and CORE OS' CDROM. If the system is off, power it on; otherwise run the commands:

```
root# sync; sync; sync; reboot
```

When prompted "`To discontinue press any key within 10 seconds.`", press any key to interrupt the boot sequence. Note that recent HP models allow the graphics model configuration to be modified by a similar method, so don't confuse the prompts for these two things.

When prompted "`Main menu: Enter command`"[2], run the command:

```
Main Menu: Enter command > search
```

Identify the CDROM drive in the peripheral list and boot from the CDROM drive with the command "**boot <*boot_device*>**" e.g. if "**search**" produced this:

```
Path Number   Device Path   Device Type
-----------   -----------   -----------
P0            SCSI.2.0      Toshiba CD-ROM XM-5401 TA
P1            SCSI.3.0      DEC DSP5200S
```

then the CDROM would be booted with the command:

```
Main Menu: Enter command > boot p0
```

When prompted "`Interact with IPL (Y,N,Q)?>`", enter "**n**". The system begins to boot.

If prompted "`Enter the number of the language you want:`", select the number corresponding to the keyboard you have. Assuming you entered the right number, when prompted "`Please confirm your choice by pressing RETURN or enter a new number:`" just press <***ENTER***>.

On HP-UX 10.20, a warning message may appear concerning products B6193xx and B6378xx. This can safely be dismissed by pressing any key to continue.

4.2 BOOTING Solaris 2.6[3]

Insert the Solaris 2.6 CDROM (OS 5/98). If the system is off power it on, otherwise run the commands:

```
root# sync; sync; sync; halt
```

From the '`ok`' prompt, verify that the CDROM drive and all other peripherals are attached by issuing the command:

---

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. Different firmware revisions display slightly different messages here, but the "**search**" command is always valid.
3. Complete this section for Solaris 2.6 only.

ok **probe-scsi-all**

or if the hardware is older, try:

ok **probe-scsi**

If any of the peripherals are not detected then resolve the issue before proceeding.

Boot from the CDROM by entering the command:

ok **boot cdrom**

If this fails to boot, it may be because the CDROM is configured with a non-standard SCSI ID. In this case there should be a message similar to:

```
Boot device: /sbus/espdma@e,8400000/esp@e,8800000/sd@6,0:f File and args:

Can't open boot device
```

In this case, replace the SCSI ID, which in the above example is 6, with the SCSI ID of the CDROM and enter the command:

ok **boot <*boot_path*>**

where <*boot_path*> is the full boot device as reported by the system, but with the correct SCSI ID.

The system will then boot from the CDROM. This may take some time.

4.3 INSTALL OPTIONS FOR HP-UX 10.20[1]

At the menu "Welcome to the HP-UX installation/recovery process!", select "**Install HP-UX**".

When prompted "Would you like to enable networking now?", respond by pressing "**n**".

If the system has more than one hard disk installed then the "HP-UX Install Utility - Select System Root Disk" menu is displayed and you should select the designated root disk and then confirm by selecting "**OK"**.

At the "HP-UX Install Utility - Select Whole-System Configuration" menu, select: **"Standard LVM Configuration"** and confirm by selecting "**OK**".

At the "HP-UX Install Utility - View/Modify Whole System Configuration" menu, select settings as below (note that default values are not shown to avoid confusion):

```
Primary Swap Space: 512
Secondary Swap Space: None
Software Selection: CDE Runtime Environment
Load 10.20 Networking ACE: True
Software Language: English
```

1. Complete this section for HP-UX 10.20 only.

`Locale Setting:` **`default(C)`**
`File System File Name Length:` **`Long`**
`/home Configuration:` **`None`**
`How many disks in root group:` **`One`**[1]
`Make Volatile Directories Separate:` **`True`**
`Create /export Volume:` **`False`**

Confirm the settings by selecting "**OK**".

At the "`HP-UX Install Utility - System Configuration`" menu, select "**Modify FS Parameters**" and at the "`HP-UX Install Utility - Configure File Systems`" menu modify the partition sizes and add the missing partitions for the *first disk only* as decided earlier. When each partition for the first disk is set up, click on "**OK**" in order to get back to the "`HP-UX Install Utility - System Configuration`" menu.

Then repeatedly select "**OK**" until you get to the "`HP-UX Install Utility - Enter SD-UX swinstall information`" screen. If you encounter warnings that disks already contain filesystems then consider them carefully before dismissing them by selecting "**Continue**".

At the "`HP-UX Install Utility - Enter SD-UX swinstall information`" menu, when asked if you wish to interact with SD-UX, select "**No**". Then select "**OK**" to actually start installing the operating system.

Depending on your hardware this can take anywhere from 20 to 60 minutes. During this time the machine may reboot multiple times, though no user input is required. Eventually the system will display a window entitled "`Set System Parameters`"[2].

4.4 INSTALL OPTIONS FOR HP-UX 11.00[3]

At the menu "`Welcome to the HP-UX installation/recovery process!`", select "**Install HP-UX**".

At the screen '`User Interface and Media Options`', select '**Media only installation**' and '**Advanced Installation**'[4]. Then select '**OK**' to continue.

At the screen '`/opt/ignite/bin/itool ()`', select the following settings:

`Basics:`
`Configuration:` **`HP-UX B.11.00 Default`**
`Environment:` **`64-Bit CDE HP-UX Environment`**[5]
`Environment:` **`32-Bit CDE HP-UX Environment`**[6]
`Root disk:` ***`<select_in_accordance_with_information_gathered_earlier>`***
`File system:` **`Logical Volume Manager (LVM) with HFS`**[7]
`Root swap:` ***`<select_in_accordance_with_information_gathered_earlier>`***
`Languages:` ***`<no_changes>`***
`Keyboards:` ***`<no_changes>`***
`Additional:` ***`<no_changes>`***

---

1. This setting only appears if the system has more than one disk.
2. If run on an ASCII terminal, most windows are untitled.
3. Complete this section for HP-UX 11.00 only.
4. On a text-based installation, field navigation is done with the **TAB** key.
5. Make this selection on J class systems
6. Make this selection on C class systems
7. This option is not the one offered by default -- be sure you're selecting the right one!

Software:
<no_changes>

System:
Final System Parameters: **Ask at first boot**

Filesystem:
<set_file_system_sizes_FOR_THE_FIRST_DISK_ONLY_as_decided_earlier>[1]

Advanced:
<no_changes>

Then repeatedly select '**Go!**' until the installation process starts.

Depending on your hardware this can take anywhere from 20 to 60 minutes. During this time the machine may reboot multiple times, though no user input is required. Eventually the system will prompt for a keyboard language, to which the correct keyboard type should be selected and confirmed.

4.5 INSTALL OPTIONS FOR Solaris 2.6[2]

At the menu "Languages", select "**English**".

At the menu "Locales", select "**USA - English (ASCII only)**".

If you are using a text terminal then at the menu "What type of terminal are you using?', select the type according to what you are using.[3] Depending on what type of terminal you have, the keys for performing certain actions will vary.

At the "The Solaris Installation Program" screen, some information is given about keyboard navigation, select "**Continue**".

At the "Identify This System" screen, select "**Continue**".

At the "Host Name" screen, enter the unqualified hostname[4] and select "**Continue**".

At the "Network Connectivity" screen, set:

Networked: [**X**] No[5] (select "**Continue**").

At the 'Confirm Information' screen, assuming the data was correctly entered, select "**Continue**" to confirm.

At the "Time Zone" screen, select the time zone corresponding to your geographical location.

At the "Date and Time" screen, set the date and time, select "**Continue**", and at the "Confirm Information" screen, select "**Continue**".

---

1. The easiest approach with the HP-UX 11.00 installation interface is to (i) set the 'Size type' to '**Fixed MB**' for all partitions, remembering to select '**Modify**' to apply the change each time (ii) review all partitions to check the type is set to 'Fixed MB', (iii) resize/add/delete partitions as appropriate, remembering to select '**Add**', '**Modify**' or '**Remove**' as appropriate and then finally (iv) review the changes. It is extremely easy to get this wrong!
2. Complete this section for Solaris 2.6 only.
3. If you selected "13", for a type not on the list then you will be additionally prompted for the terminal type.
4. i.e. everything before the first ".", e.g. "te13" instead of "te13.hq.eso.org".
5. Select "no" even if the system is networked; network configuration is dealt with after all patches have been applied.

The system then reports that system identification is completed and starts the Solaris installation program.

At the "`Solaris Interactive Installation`" screen, select "**`Initial`**", and at the next screen "**`Continue`**".

At the "`Allocate Client Services?`" screen, select "**`Continue`**".

At the "`Select Languages`" screen, select "**`Continue`**" without selecting any additional languages.

At the "`Select Software`" screen, select "**`Entire Distribution plus OEM Support`**".

At the "`Select Disks`" screen, select the disk you have decided to install the OS on.

At the "`Preserve Data?`" screen, select "**`Continue`**"

At the "`Automatically Layout File Systems?`" screen, select: "**`Auto Layout`**", and then set:

```
File Systems for Auto-layout
[X] /
[X] /opt
[X] /usr
[ ] /usr/openwin (required for FIERA: see VLT-MAN-ESO-13640-1707)
[X] /var
[X] swap
```

At the "`File System and Disk Layout`" screen, select "**`Customize`**" and set the partition sizes according to those you decided earlier *for the first disk only*.[1] Don't change the size of partition 2, called '`overlap`'.

Then select "**`OK`**" to return to the "`File System and Disk Layout`" screen, and assuming all data was correctly entered, select "**`Continue`**".

At the "`Mount Remote File Systems?`" screen, select "**`Continue`**".

At the "`Profile`" screen, assuming all data was correctly entered, select "**`Begin Installation`**".

If some disk space has been left unallocated then a warning will be displayed, this can be dismissed by selecting '**`OK`**'.

At the "`Reboot After Installation?`" screen click on "**`Auto Reboot`**", to begin the system installation.

Depending on your hardware this can take anywhere from 20 minutes to a couple of hours. During this time no user input is required. Eventually the system will display a window entitled "`On this screen you can create a root password.`"

1. Extending a partition requires that there is unallocated space on the disk into which to extend! For this reason it is probably easier to delete unwanted partitions before increasing the sizes of others.

4.6 COMPLETING THE CORE OS INSTALLATION FOR HP-UX 10.20 AND HP-UX 11.00[1]

Regardless of whether the machine will be connected to a network, it makes more sense to install applications and patch bundles first, and to postpone network configuration until afterwards. So at the "`Set System Parameters`" window, when prompted "`Are you ready to link this system to a network?`", select "**`No`**".

If asked whether or not to you DHCP to obtain network information, select "**`No`**".

However, we do need to provide some other basic configuration information now, so when prompted about system name and time zone information, at the question "`Do you wish to continue?`", select "**`Yes, Continue`**".

At the "`System Hostname`" window, enter the unqualified assigned hostname[2] and at the "`Confirm Hostname`" window, assuming you entered the information correctly, confirm the name by selecting "**`Yes`**".

At the "`Time Zone`" window, select the time zone according to your geographical location[3]. At the "`Confirm Time Zone`" window, assuming you entered the information correctly, select "**`Yes`**".

At the "`Confirm Date and Time`" window, if the time displayed is correct then select "**`Yes`**", otherwise select "**`No`**", at the "`Date and Time`" window set the correct date and time, select "**`OK`**" and at the "`Confirm New Date`" window, select "**`Yes`**".

At the "`Set Root Password`" window, select "**`Yes`**" and, follow the prompts to enter a new password for the root user. At the "`Root Password Accepted`" window, select "**`Close`**".

If prompted to "`Configure Font Server`" window, select "**`Skip`**" or "**`No`**", and at the "`Confirm Font Server`" window, assuming you entered the information correctly, select "**`Yes`**".

If there is unallocated disk space, then a window titled "`Unallocated Disk Space`" appears. This can safely be dismissed by selecting "**`Close`**", or **<*`RETURN`*>** to continue.

When reminded how to change the settings just changed, select "**`Close`**", or **<*`RETURN`*>** to continue. The machine then continues to boot up in the normal manner.

If you are installing a system with a graphics card installed but with no keyboard or mouse connected, by using a text terminal then you will receive messages about CDE not being able to be started. To prevent such messages, log in as root and edit the file /etc/dt/config/Xservers and comment out the only non-comment line in the file. The next time the machine is rebooted, which you don't need to do now, the messages should not appear.

It is normal at this stage that certain daemons started at boot-time report a 'FAIL' message.

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. i.e., everything before the first ".", e.g. "te13" instead of "te13.hq.eso.org".
3. UTC is selected by selecting any continent from the first list, selecting '**`Unlisted time zone`**' from the second list and entering.'**`CTU0`**'.

4.7 COMPLETING THE CORE OS INSTALLATION FOR Solaris 2.6

At the "`On this screen you can create a root password.`" screen, set the root password, following the prompts.

Solaris 2.6 in combination with certain hardware can power off after 30 minutes idle time. So if prompted:

"`Do you wish to accept this default configuration ...?`",

disable this feature by responding '**`n`**', and at the prompt

"`Should the system save your answer ...?`", respond '**`y`**'.

The system then completes booting up.

5 OPERATING SYSTEM CONFIGURATION

5.1 SUPER-USER HOME DIRECTORY

Login as root. Change root's home directory to /root by running:

```
root# TERM=<your_terminal_type>
root# export TERM
root# PATH=$PATH:/usr/openwin/bin
root# eval `resize`
root# vi /.profile
```

look for a line like:

```
PATH=/usr/sbin:$PATH:/sbin:/home/root
```

and change it to:

```
PATH=/usr/sbin:$PATH:/sbin:/root
```

then add the following lines at the bottom of the file:

```
PS1="`uname -n`# "
export PS1
umask 022
```

Then save the file and run the commands:

```
root# umask 022
root# mkdir /root
root# mv /.profile /root
root# vi /etc/passwd
```

and change the line for root to:

```
root:<encrypted_password>:0:<gid>:<system_name>   Super-User:/root:/sbin/
sh[1]
```

On Solaris, ecrypted passwords are not stored in /etc/passwd, so you may want to change the previous line with:

```
root:x:0:<gid>:<system_name> Super-User:/root:/sbin/sh
```

On Solaris, allow console access via the network by running:

```
root# vi /etc/default/login
```

and comment out the definition of "CONSOLE", so the line reads:

```
#CONSOLE=/dev/console
```

1. The GECOS field is changed so that 'From: ' line in mail messages clearly states the source of any automatically generated mail messages. If root's mail is relayed to a central mail system then it can be difficult to identify the source of a message otherwise.

Then verify things are okay *before* logging out by running:

```
root# telnet localhost
```

and verifying that you can log in as root. Then log right out and back in again and run:

```
root# rm -fr /SD_CDROM /.vue* /.dt* /.sw* /.cpr_config /.new
```

5.2 CONFIGURING A SECOND HARD DISK FOR HP-UX 10.20[1]

If you have more than one hard disk then the others will need to be set up too *using the same volume group parameters as for the first disk*. In order to ascertain these parameters, run the command:

```
root# vgdisplay /dev/vg00
```

and note down the Max PE per PV, Max LV, Max PV and PE Size; these will be needed shortly. Then as root, run sam:

```
root# sam
```
[2]

Select "**Disks and File Systems**", then "**Volume Groups**", "**Actions**" and "**Create or Extend ...**". From the displayed list of disks, carefully select the disk corresponding to the second hard disk and select "**OK**" to continue.

At the "Add a Disk Using LVM" screen, select "**Create or Extend a Volume Group...**" and set the volume group name to "**vg01**", select "**Modify Default Options...**", enter the maximum physical extents, maximum logical volumes, maximum physical volumes and physical extent size as noted down a moment ago, then select "**OK**" to return to the "Create a Volume Group" screen and "**OK**" again to return to the "Add a Disk Using LVM" screen.

Then select "**Add New Logical Volumes...**" and for each filesystem or swap partition defined earlier, supply the LV name[3], the LV size as decided earlier, whether to make it a filesystem or swap volume, and the mount point if it is for a filesystem. Once all logical volumes are added, select "**OK**" to return to the "Add a Disk Using LVM" screen, and then select "**OK**" to create the volume group, logical volumes, file systems and mount them. Then exit out of sam.

1. Complete this section for HP-UX 10.20 only. If you system does not have a second hard disk then skip this section.
2. If run on a text terminal, then help on using the keyboard is displayed; once read this can be dismissed by pressing ***<ENTER>***.
3. Use "lvol1", "lvol2", etc.

5.3 CONFIGURING A SECOND HARD DISK FOR HP-UX 11.00[1]

If you have more than one hard disk then the others will need to be set up too *using the same volume group parameters as for the first disk*. In order to ascertain these parameters, run the command:

root# **vgdisplay /dev/vg00**

and note down the Max PE per PV, Max LV, Max PV and PE Size; these will be needed shortly. Then as root, run sam:

root# **sam**[2]

Select "**Disks and File Systems**", then "**Volume Groups**", "**Actions**" and "**Create ...**". Then select "**Select New Volume Group Name...**", set the name to '**vg01**' and select "OK" to return to the "Create New Volume Group" window.

Then select '**Select Disk(s)...**' and from the displayed list of disks, carefully select the disk corresponding to the second hard disk and select "**OK**" to return to the 'Create New Volume Group' window.

Then select '**Modify Default Volume-Group Options...**' and enter the maximum physical extents, maximum logical volumes, maximum physical volumes and physical extent size as noted down a moment ago, and select "**OK**" to return to the 'Create New Volume Group' window.

Then select '**OK**' to have the volume group created. Confirmation may be required if the disk already contains a volume group left from a previous installation.

To then define the logical volumes, select '**List**' then '**Logical Volumes**' then '**Actions**' and '**Create...**'.

Then select '**Select Volume Group...**' and for 'Volume Group Name...' select '**vg01**' and select '**OK**' to return to the 'Create New Logical Volumes' window.

Then select '**Define New Logical Volume(s)...**' and for each filesystem or swap partition defined earlier, supply the LV name[3], the LV size as decided earlier[4], whether to make it a filesystem or swap volume, and the mount point if it is for a filesystem.

Once all logical volumes are added, select "**OK**" to return to the "Create New Logical Volumes" screen.

Then select "**OK**" to create the logical volumes, file systems and to have them mounted. If you have created a swap partition on this disk, then you may be prompted to modify a kernel parameter in order to ensure successful swap access. If this happens then select "**Yes**", accept all kernel parameter modifications suggested by selecting 'OK'.

Then exit out of sam. If you were required to modify a kernel parameter, then at the 'Create a New Kernel' window, select '**Defer Kernel Creation Until Later**'[5] and select '**OK**' and exit sam.

---

1. Complete this section for HP-UX 11.00 only. If you system does not have a second hard disk then skip this section.
2. If run on a text terminal, then help on using the keyboard is displayed; once read this can be dismissed by pressing **<*ENTER*>.**
3. Use "lvol1", "lvol2", etc.
4. Values which are not multiples of four get rounded up; for the last lvol this may me more than the remaining space and this can generate two note windows. Simply acknowledge them and then select a size 4Mb less.
5. More kernel modifications will be made shortly, so it is best to do them all at one time to avoid an extra reboot.

5.4 CONFIGURING A SECOND HARD DISK FOR Solaris 2.6[1]

To identify which disk the OS is on, run the command:

```
root# df -k /
```

Then, with careful consideration, run:

```
root# format
```

and select the second disk. To modify the partition table for the second disk, run:

```
format> partition
partition> print
```

Then by selecting each partition number in turn, modify the partition parameters as decided earlier. Then to write the modified partition table back to the disk, run the command:

```
partition> label
```

Then quit out of the format command as follows:

```
partition> quit
format> quit
```

Create new file systems on each partition of the second disk, again carefully considering the command line arguments, with the command:

```
root# newfs /dev/dsk/<partition_device_path>
```

Create the necessary mount points, which will depend on your partition scheme, but should probably include some of the following directories:

```
root# mkdir /vlt /vltdata /data /diska /diskb
```

Add corresponding entries to /etc/vfstab, and then mount the created partitions with the command:

```
root# mountall
```

If there is a swap partition on the second disk then this will also require an entry in /etc/vfstab.

1. If you system has only one hard disk, skip this section.

5.5 CONFIGURING THE CDROM FOR HP-UX 10.20 AND HP-UX 11.00[1]

As root run the following command:

```
root# mkdir /cdrom
root# ioscan -fn | egrep di?sk
```

From the large amount of output identify the entry for the CDROM, which should be of the format:

```
disk 0 <hardware_path> sdisk CLAIMED DEVICE <model_description>
                       <cd_block_device>[2] <cd_character_device>
```

Noting the block device, now edit /etc/fstab and add the following entry to it:

```
<cd_block_device> /cdrom cdfs ro,suid,noauto 0 0
```

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. Something like /dev/dsk/cXtXd0, where X is a number.

5.6 KERNEL CONFIGURATION FOR HP-UX 10.20[1]

Ensure that SAM is running under the root account.

From SAM's top menu level, select "**Kernel Configuration**", then select "**Drivers**". For each of the following drivers, if it is not already marked 'in', then highlight it and select "**Actions**", then "**Add driver to Kernel**"[2]:

graph3
hil
stape

Select "**List**" from the top menus, then "**Configurable Parameters**", select each of the items below in turn and then select "**Actions**" and "**Modify Configurable Parameter**" and set its value as specified below:

maxdsiz	***<the_bigger_of_128Mb_and_half_physical_memory>***[a]
maxswapchunks	**1024**
nproc	**(20+20*MAXUSERS)**

a. The number is displayed in hexadecimal (e.g. 0x20,000,000 = 512 Mb, 0x10,000,000 = 256Mb, 0x8,000,000 = 128Mb).

To make all the changes effective, select "**Actions**" and then "**Create a new Kernel**" and at the "Confirmation" window select "**Yes**". When the "reboot the system" window appears, select:

```
Move kernel into place: yes
Overwrite /stand/system: yes
```

and confirm by selecting "**OK**".The system will then reboot.

1. Complete this section for HP-UX 10.20 only.
2. Add the driver even if the system does not currently have a DAT drive attached.

5.7 KERNEL CONFIGURATION FOR HP-UX 11.00[1]

Ensure that SAM is running under the root account.

From SAM's top menu level, select "**Kernel Configuration**", then select "**Drivers**". For each of the following drivers, if it is not already marked 'in', then highlight it and select "**Actions**", then "**Add driver(s) to Kernel**"[2]:

graph3
stape

Select "**List**" from the top menus, then "**Configurable Parameters**", select each of the items below in turn and then select "**Actions**" and "**Modify Configurable Parameter**" and set its value as specified below:

maxdsiz	***<the_bigger_of_128Mb_and_half_physical_memory>***[a]
maxswapchunks	**1536**
nproc	**(20+20*MAXUSERS)**

a. The number is displayed in hexadecimal (e.g. 0x20,000,000 = 512Mb, 0x10,000,000 = 256Mb, 0x8,000,000 = 128Mb).

To make all the changes effective, select "**Actions**" and then "**Process new Kernel**" and at the "Confirmation" window select "**Yes**". A new kernel is then built.

At the "reboot the system" window, select:

```
<*> Move Kernel Into Place and Shutdown/Reboot System Now
< > Do not Move Kernel into Place; Do Not Shutdown/Reboot Now
[X] Overwrite /stand/system
```

and confirm by selecting "**OK**".A note window appears to explain that comments in /stand/system will be lost. Dismiss this by selecting '**OK**' and the system then reboots.

1. Complete this section for HP-UX 11.00 only.
2. Add the driver even if the system does not currently have a DAT drive attached.

5.8 KERNEL CONFIGURATION FOR Solaris 2.6[1]

Add the following lines to /etc/system:

```
set rstchown = 0[2]
```

5.9 KERNEL CONFIGURATION FOR CCSLite

This is a reminder for everybody who needs to perform, after the OS installation, a VLTSW installation for a CCSLite VLTROOT.

In this case, it is necessary to tune again the kernel parameters. Please, refer to [2] in section 1.4.

1. Complete this section for Solaris 2.6 only.
2. In order for this to take effect the system must be rebooted, but we go on to install patches first, which also require a reboot to take effect.

6 INSTALLING APPLICATIONS AND PATCHES

6.1 INSTALLING UNLICENSED APPLICATIONS

6.1.1 ADDING THREAD SUPPORT FOR HP-UX 10.20[1]

Ensure that the 'INSTALL and CORE OS' CDROM is in the drive and as root run the following commands:

```
root# mount /cdrom
root# swinstall -s /cdrom DCEProg DCESystemAdmin
root# umount /cdrom
```

6.1.2 ADDING IGNITE-UX FOR HP-UX 10.20[2]

Ensure that the 'APPLICATIONS 3' CDROM in the drive, and run the following commands:

```
root# mount /cdrom
root# swinstall -s /cdrom B5724AA_APZ
root# umount /cdrom
```

6.1.3 ADDING IGNITE-UX FOR HP-UX 11.00[3]

Ensure that the 'APPLICATIONS 2' CDROM in the drive, and run the following commands:

```
root# mount /cdrom
root# swinstall -s /cdrom Ignite-UX-11-00
root# umount /cdrom
```

1. Complete this section for HP-UX 10.20 only.
2. Complete this section for HP-UX 10.20 only.
3. Complete this section for HP-UX 11.00 only.

6.1.4 INSTALLING ATM APPLICATIONS FOR HP-UX 10.20 AND HP-UX 11.00[1]

Install the ATM network adapter card as specified in the documentation which accompanied the hardware or in the system owner's guide.

Insert the 'APPLICATIONS 1' CDROM. Login as root and run the commands:

```
root# mount /cdrom
root# swinstall -s /cdrom
```

HP ATM software products now have IDs which correspond with the ATM hardware product IDs. Therefore, select the package which corresponds with the ATM card installed[2]. (e.g. if your ATM adapter is an A5513A, then select the package "**A5513A (PCI 700 ATM/155-622 Link Software for A5513A)**").

Then select "**Actions**", and "**Install**". When "OK" becomes selectable then select it. When asked to acknowledge that a reboot will be necessary, do so by selecting "**OK**". When "done" becomes selectable, select it and the system should then reboot.

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only, and only if the system has an ATM card installed.
2. ATM card product IDs are stamped on ATM card end-connectors, which are visible without opening the machine case.

6.1.5 INSTALLING ATM APPLICATIONS FOR Solaris 2.6[1]

6.1.5.1 INSTALLING ATM APPLICATIONS FOR Sun Themis SYSTEMS

Insert the ESO-VLT-VLTSW-NOV2000-SUN-SUNOS-56-PRODUCTS CDROM in the drive, log in as root and enter the commands:

```
root# cd /cdrom/cdrom0
root# pkgadd -d sunatm_2_1 SUNWatm SUNWatmu SUNWatma
```

All questions should be answered with "**y**".

Eject the CDROM with the command:

```
root# cd /
root# eject
```

6.1.5.2 INSTALLING ATM APPLICATIONS FOR OTHER Sun SYSTEMS

Insert the SunATM 4.0 Update 1 CDROM in the drive, log in as root and enter the commands:

```
root# pkgadd -d /cdrom/sunatm_4_0_update_1/Product SUNWatm SUNWatmu \
> SUNWatma
```

All questions should be answered with "**y**".

Eject the CDROM with the command:

```
root# cd /
root# eject
```

1. Skip this section f the system does not have ATM.

6.2 INSTALLING LICENSED APPLICATIONS FOR HP-UX 10.20 AND HP-UX 11.00[1]

HP-UX applications are installed as follows.

Login as root and repeat the following procedure for each CDROM corresponding to the operating system in the table listed below.

Insert the appropriate CDROM in the drive and run the commands:

```
root# mount /cdrom
root# swinstall -s /cdrom
```
[2]
A message is displayed explaining that the CDROM contains both protected and unprotected software; dismiss this by selecting "**OK**".

Then select "**Actions**", then "**Add New Codeword**" and add the customer ID and the codeword corresponding to the inserted CDROM, as detailed in the table below. Then select "**OK**" to have the codeword accepted and the CDROM re-scanned for newly de-protected software.

Highlight all applications corresponding to the inserted CDROM and select "**Actions**" and "**Mark for Install**". A message is displayed explaining that the selected product bundle contains products which depend on other products not found on the CDROM; this can safely be dismissed by selecting "**OK**". Then select "**Actions**" and "**Install (analysis)...**". Note that certain products on certain systems can take a long time to analyse or install and that this can result in the software installation agent program timing out. If this happens, then exit out of swinstall and restart it, repeating the selection and installation procedure.

When "OK" becomes selectable, select it and when asked to confirm installation, select "**Yes**". The products are then installed.

When "Done" becomes selectable, select it and exit out of swinstall. Run the command:

```
root# umount /cdrom
```

That's the procedure, now here are the relevant numbers:

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. If run on a text terminal, an informational screen is displayed explaining how to navigate the menus with the keyboard; once read, this can be dismissed by pressing ***<ENTER>***

6.2.1 HP-UX 10.20 CODEWORDS

Customer Id	CDROM	Codeword	Product Id	Product Name
Y9UUTUJEY3A3	Apps #1 B3782-10459	3XBH P160 THMP TP-Z	B3899BA	HP C/ANSI C Developer's Bundle
			B3907CA	HP Fortran Compiler and associated
	Apps #2 B3782-10460	SNYC 8BDB J01P 5DNR	B4474FA	HP Netstation Software

6.2.2 HP-UX 11.00 CODEWORDS

Customer Id	CDROM	Codeword	Product Id	Product Name
6CTUTUGU9GAJ	Apps #2 B3782-10464	68JY 5VTZ -180 WXYY	B3899BA	HP C/ANSI C Developer's Bundle
			B3907CA	HP Fortran Compiler and associated
			B4474FA	HP Netstation Software

6.3 INSTALLING LICENSED APPLICATIONS FOR Solaris 2.6

There are no licensed applications to be installed.

6.4 INSTALLING PATCHES

6.4.1 RECOMMENDED PATCH BUNDLES FOR HP-UX 10.20[1]

Log in as root. Insert the 'Support Plus' CDROM. Mount the CDROM and start the software installer by running:

```
root# mount /cdrom
root# swinstall -s /cdrom/XSW700GR1020 -x match_target=true \
> -x autoreboot=true
```

Note: The previous command must be typed on a single line.

Depending on your hardware, certain patches may be rejected generating an 'ERROR' message. These should be carefully reviewed but normally do not indicate an error.

The patch bundle is then installed and the machine should reboot. Note that booting up will be slower than normal, as many of the filesets on the CDROM are configured at that time.

6.4.2 RECOMMENDED PATCH BUNDLES FOR HP-UX 11.00[2]

Log in as root. Insert the 'Support Plus' CDROM. Mount the CDROM and start the software installer by running:

```
root# mount /cdrom
root# swinstall -s /cdrom/XSWGR1100 -x patch_match_target=true \
> -x autoreboot=true
```

Note: The previous command must be typed on a single line.

Depending on your hardware, certain filesets may be rejected generating an 'ERROR' message. These should be carefully reviewed but normally do not indicate an error.

The patch bundle is then installed and the machine should reboot. Note that booting up will be slower than normal, as many of the filesets on the CDROM are configured at that time.

1. Complete this section for HP-UX 10.20 only.
2. Complete this section for HP-UX 11.00 only.

6.4.3 RECOMMENDED PATCH BUNDLES FOR Solaris 2.6[1]

Ensure that root is logged in. Insert the ESO-VLT-VLTSW-NOV2000-SUN-SUNOS-56-PATCHES CDROM. The CDROM should be automatically mounted by the volume manager.

Run the following commands:

```
root# cd /cdrom/cdrom0/2.6_Recommended
root# ./install_cluster
```

and when prompted '`Are you ready to continue with the install? [y/n]: `', then respond '**`y`**'. The patch installation then continues without intervention. Note that it is possible that certain patches report error codes 2 or 8[2]; no other error codes should be displayed. When it finishes loading recommended patches run:

```
root# cd /cdrom/cdrom0/2.6_y2000_ALL
root# ./install_cluster
```

and when prompted '**`Are you ready to continue with the install? [y/n]: `**', then respond '**`y`**'. The patch installation then continues without intervention. Again certain patches report error codes 2 or 8; no other error codes should be displayed.

1. Complete this section for Solaris 2.6 only.
2. These mean that the patch is already installed or not appropriate to the hardware and software configuration.

6.4.4 INDIVIDUAL PATCHES FOR HP-UX 10.20 AND HP-UX 11.00[1]

Insert the 'ESO-VLT-VLTSW-MAR2001-HP-HPUX-PATCHES CDROM, log in as root and run the commands:

```
root# pfs_mountd &
[1]
root# pfsd 4 &
[2]
root# grep cdrom /etc/fstab
<cdrom_block_device_path> /cdrom cdfs ro,suid,noauto 0 0
root# pfs_mount <cdrom_character_device_path>[2] /cdrom
pfs_mount: /dev/rdsk/c0t0d0 on /cdrom: Device busy[3]
pfs_mount: giving up on /cdrom
root# ls /cdrom
```

If the above command shows that the CDROM has not been successfully mounted, then attach a ethernet cable between the LAN interface and a hub, kill all PFS-related processes and configure the ethernet interface:

```
root# ps -ef | grep pfs | awk '{ print $2 }' | xargs kill
root# ifconfig lan0 192.168.0.1[4]
```

and repeat the PFS- and mount-related commands above; this time the the 'ls' command should show that the CDROM has successfully been mounted.

Once the CDROM has successfully been mounted, run:

```
root# swinstall -s /cdrom -x autoreboot=true \*
```

The system may or may not then reboot. If it does not reboot, then reboot it manually with the commands:

```
root# sync; sync; sync; reboot
```

Booting up will take longer that usual as the patches are configured at this time.

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. Note that the grep shows the block device, but the pfs_mount command requires the character device, which is the same but with 'dsk' changed to 'rdsk', e.g. /dev/rdsk/c1t2d0 instead of /dev/dsk/c1t2d0.
3. This output may or may not appear.
4. This is a dummy IP address, which is safe to use for such purposes.

6.4.5 INDIVIDUAL PATCHES FOR Solaris 2.6

Insert the ESO-VLT-VLTSW-NOV2000-SUN-SUNOS-56-PATCHES CDROM, log in as root and run the commands[1]:

```
root# cd /cdrom/cdrom0
root# for DIR in ??????-??; do
> ( cd $DIR && ./installpatch `pwd` )
> done
```

To install the ESO-packaged software, run:

```
root# cd /cdrom/cdrom0
root# for PKG in *.pkg; do
> pkgadd -n -d $PKG all
> done
```

1. Note that this procedure generates warnings related to the use of installpatch scripts in future Solaris releases.

6.5 APPLYING MANUAL PATCHES

6.5.1 HP NETSTATION SOFTWARE FIX FOR HP-UX 10.20[1]

One of the patches for audio support on HP X terminals in Enware I is broken. It is fixed as follows:

```
root# cd /opt/hpxt/enware
root# ( cd xthome.B.07.11 && tar cf - . ) | ( cd xthome && tar xf - )
root# rm -fr xthome.B.07.11
root# mv xthome.B.07.10 xthome.B.07.11
```

6.5.2 CONFIGURING ESO-PACKAGED PRODUCTS

The products on the 'ESO-VLT-VLTSW-NOV2000' patches CDROM should be configured with the following commands, in order than users will have access to them without modifying their environment.

```
root# TS=`date '+%Y%m%d%H%M'`
root# for PROG in bash tcsh; do
> cd /bin
> [ -f $PROG ] && mv $PROG $PROG.$TS
> ln -s /opt/*$PROG/bin/$PROG $PROG
> cd /usr/man/man1
> [ -f $PROG.1 ] && mv $PROG.1 $PROG.1.$TS
> ln -s /opt/*$PROG/man/man1/$PROG.1 $PROG.1
> done
```

In Addition, add the following entries to /etc/shells if they are not already there:

```
/sbin/sh
/sbin/csh
/usr/bin/sh
/usr/bin/csh
/usr/bin/tcsh
/usr/bin/ksh
/usr/bin/bash
/bin/sh
/bin/csh
/bin/tcsh
/bin/ksh
/bin/bash
```

6.5.3 /usr/local FIXES FOR HP-UX 10.20 AND HP-UX 11.00

As installed, /usr/local may have too relaxed permissions. Run the following command to correct this:

```
root# find /usr/local -type d | xargs chmod go-w
```

1. Complete this section for HP-UX 10.20 only.

6.5.4 ATM BOOT-TIME CONFIGURATION FIX FOR HP-UX 10.20[1]

HP-UX 10.20 tries to assign IP addresses to network interfaces *before* hardware-level configuration of the interfaces. On an ATM system, this results in a 'FAIL' message at boot time. There is currently no official patch for this problem, but it is simply fixed by running the following commands as root:

```
root# cd /sbin/rc2.d
root# mv S310atm S007atm
```

6.5.5 ATM BOOT-TIME CONFIGURATION FIX FOR HP-UX 10.20 AND HP-UX 11.00[2]

On fast hardware it is possible that the OS will try to access the ATM hardware before it is ready. To prevent this, add the following line to /etc/rc.config.d/atmconf:

```
ATM_ELAN_TIMEOUT=30
```

6.6 PATCH ACTIVATING REBOOT

To make the kernel and other patches effective, now reboot the system with the commands:

```
root# sync; sync; sync; reboot
```

Note that some error message at boot time (like the ones from sendmail) are normal at this stage and this will be fixed in a short while.

1. Complete this section for HP-UX 10.20 only, and only if the system has an ATM card.
2. Complete this section for HP-UX 10.20 and 11.00 only, and only if the system has an ATM card.

7 NETWORK CONFIGURATION

7.1 CONFIGURING NETWORK INTERFACES

7.1.1 CONFIGURING THE ETHERNET INTERFACE FOR Solaris 2.6

Log in as root and run:

```
root# sys-unconfig
Do you want to continue (y/n) ? y
ok boot
```

When the machine boots it will prompt for much of the same information as when the machine was first booted from the CDROM. This should be answered as before.

Eventually the system prompts for the hostname again, which should be entered as before, and then asks if the machine is networked. This time respond:

```
Networked:
[X] Yes
[ ] No
```

When prompted for the IP address, enter it and, assuming the information entered was correct, confirm it.

At the "`Name Service`" screen, select the appropriate name lookup service for your network[1]. However, if this is a FIERA workstation, be sure to refer to VLT-MAN-ESO-13640-1707 for details.

At the "`Subnet`" screen, when prompted "`System is part of a subnet`", respond "**`y`**", and when prompted enter the correct subnet mask for the network the system is on.

As before, specify the time zone information, confirm the date and time, set the root password, and if prompted for the power management options, answer "**`n`**" and then "**`y`**".

The system then reboots.

1. For DNS, select "**`Other`**".

7.1.2 CONFIGURING ATM USING LAN EMULATION FOR HP-UX 10.20 AND HP-UX 11.00[1]

This is the standard configuration for VLT LANs.

Login as root and run **sam**. Select '**Networking/Communications**' and then '**Network Interface Cards**'. Then select '**ATM**', select the ATM card from the list of interface cards displayed, and select '**Actions**'. If this is the first time the card has been configured then select '**Configure**', otherwise select '**Configure ATM Card Parameters**'. The following parameters must be set:

```
Physical Layer: Sonet
Network Prefix: From Network
UNI Version: 3.1
```

Then select '**OK**' to continue. A note will be displayed explaining that currently no ATM protocol intefaces are defined yet. This can be dismissed by selecting '**OK**'.

Now go to "**Actions**" and select "**Add Elan Interface**". The following parameters must be set:

```
IP Address: <designated_IP_address_on_the_ATM_interface>
Start at Init: Yes
Subnet mask: 255.255.255.0
MTU size: 1516
ELAN MAC Address: Default
LANE Version: LANE V1
Primary LECS: From Network
LECS Address: <leave_unset>
LEC Selector: <designated_LEC_Selector>
ELAN Name: <designated_ELAN_name>
Secondary LECS: <leave_unset>
```

Confirm the settings by selecting '**OK**', and then exit out of sam.

7.1.3 CONFIGURING ATM USING LAN EMULATION AS THE ONLY NETWORK CONNECTION FOR HP-UX 10.20 AND HP-UX 11.00[2]

Switch the interface which the machine uses by default by running the following commands as root:

```
root# vi /etc/rc.config.d/netconf
```

change the `INTERFACE_NAME[0]` line to read:

```
INTERFACE_NAME[0]=ela0
```

save the file, exit and reboot.

1. Complete this section if you will use ELAN as your only network connection, or if you will use ELAN as one of multiple network connections.
2. Complete this section *only* if you have decided to use ATM ELAN as your *only* network connection.

7.1.4 CONFIGURING ATM USING CLASSICAL IP OVER ATM FOR HP-UX 10.20 AND HP-UX 11.00[1]

This is a faster protocol which is still under investigation. If you need to test it, configure it as follows:

Login as root and run **sam**. Select '**Networking/Communications**' and then '**Network Interface Cards**'. Then select '**ATM**', select the ATM card from the list of interface cards displayed, and select '**Actions**'. If this is the first time the card has been configured then select '**Configure**', otherwise select '**Configure ATM Card Parameters**'. The following parameters must be set:

```
Physical Layer: Sonet
Network Prefix: From Network
UNI Version 3.1
```

Then select '**OK**' to continue. A note will be displayed explaining that currently no ATM protocol intefaces are defined yet. This can be dismissed by selecting '**OK**'.

Then go to "**Actions**" and select "**Add IP Interface**". The following parameter values must then be set:

```
IP Address: <designated_IP_address>
Start at Init:
Subnet mask: 255.255.255.0
MTU size: 9180
Node Type: ATM ARP Client Node
ATM Address: <local_switch_address>
```

1. Complete this section *only* if you have decided to use Classical IP over ATM or Back to Back Classical IP over ATM as a network connection.

7.1.5 CONFIGURING ATM USING 'BACK TO BACK' CLASSICAL IP OVER ATM FOR HP-UX 10.20 AND HP-UX 11.00[1]

The ATM back-to-back connection is used as a direct high-speed data link between the Sparc and HP. The ATM interfaces are configured with "Classical IP over ATM" and are connected back-to-back with a fibre crossing the transmit and receive sockets. To run this protocol the ATM interfaces are on a different subnet than the ethernet interfaces (i.e., they are on a dedicated subnet). Both nodes are configured as ATM ARP Servers (see also HP Configuration Guide, Chapter "Creating a back-to-back connection" and "Back-to-back with non-HP systems").

As root run **sam** and select "**Networking and Communications**" and then "**Network Interface Cards**" and then "**Actions**" and "**Configuring the ATM Adapter**". Set the following parameter values:

Physical layer: **Sonet**
Network prefix: **manual entry**
Card ATM address: **47009181000000006183c57701**
UNI Version: **3.1**

Then select "**Actions**" and "**IP Interface**" and set the following parameter values:

Subnet mask: **255.255.255.0**
IP address: **<*designated_IP_address*>**
Node Type: **ATM ARP Server node**
Start at Init: **Yes**

Then select "**Actions**" and "**Configure PVCs**" and set the following parameter values:

MTU size: **default 9180**
VPI = **0**
VCI = **103**
Destination IP address: **<*designated_destination_IP_address*>**
Traffic Type: **UBR - Unspecified**
Peak Rate: **155 Mbit/s**

1. Complete this section *only* if you have decided to use Back to Back Classical IP over ATM as a network connection.

7.1.5.1 CONFIGURING LAN EMULATION FOR Solaris 2.6[1]

This is the standard configuration for VLT LANs.

Login as root and run the command:

`root#` **`/etc/opt/SUNWconn/bin/atmadmin`**

With older versions of the Sun ATM software run the command:

`root#` **`/opt/SUNWatm/bin/atmadmin`**

The initial screen should list the "`ba0`" interface is installed on the system.

At the "`Enter interface name or option`" prompt, select "`modify system parameters`" with "**`s`**", then select "`not an ATM agent`" with "**`n`**", and go back to previous menu with "**`p`**".

Then select the interface to configure with "**`ba0`**".

Select "`Physical layer`" with "**`y`**", then "`sonet`" and then select "`Uni signalling`" with "**`u`**" and at the "`Enter UNI value`" prompt. enter the value "**`3.1`**" and go back to previous menu with "**`p`**".

Select "`ILMI address registration`" with "**`i`**", enable it with "**`e`**" and go back to the previous menu with "**`p`**".

Select "`LAN Emulation`" with "**`l`**" and create a new LANE instance with "**`c`**", set the instance number to "**`1`**".

Modify the LAN Emulation parameters on ba0 by select "**`lane1`**".

Select "`hostname or IP address`" with "**`i`**" and enter the system's hostname on the ATM interface.

Leave the local ATM address alone.

Select "**`c`**" to indicate LECS is present.

Select "**`a`**" to set the LECS ATM address and enter the LECS address, select "**`e`**" to enter the designated ELAN name, and then select "**`p`**" to return to the previous menu.

Select "**`x`**" to exit, "**`s`**" to save the configuration, and "**`y`**" to confirm saving.

1. Complete this section if you will use ELAN as your network connection,.

7.1.5.2 CONFIGURING CLASSICAL IP OVER ATM FOR Solaris 2.6[1]

This is a faster protocol which is still under investigation. If you need to test it, configure it by logging in as root and running the command:

```
root# /opt/SUNWatm/bin/atmadmin
```

or, depending on your ATM software release:

```
root# /etc/opt/SUNWconn/atmadmin
```

The initial screen should list the "ba" interface is installed on the system.

At the "Enter interface name or option" prompt select "**s**", then select "not an ATM SNMP agent" with "**n**", and go back to previous menu with "**p**".

Then select the interface to configure with "**ba0**".

Select "Uni signalling" with "**u**" and enter the value "**3.1**" and go back to previous menu with "**p**".

Select "ILMI address registration" with "**i**", enable it with "**e**" and go back to the previous menu with "**p**".

Select "Classical IP" with "**c**", configure as a client with "**c**", select "IP address or hostname" with "**i**" and enter the system's hostname on the ATM interface.

Select "**a**" to set the ATM ARP server address and enter the string of 20 colon-separated octets (13 for the prefix, 6 for the MAC address, 1 for the selector)[2]. Then enter "p" to return to the previous menu.

Select "**x**" to exit and "**s**" to save the configuration.

1. Complete this section *only* if you have decided to use Classical IP over ATM or Back to Back Classical IP over ATM as a network connection.
2. The prefix should come from your network administrator, the MAC address is obtainable from "**ifconfig ba0**", the selector should be set to "**00**".

7.1.5.3 CONFIGURING 'BACK TO BACK' CLASSICAL IP OVER ATM FOR Solaris 2.6[1]

The ATM back-to-back connection is used as a direct high-speed data link between the Sparc and HP. The ATM interfaces are configured with "Classical IP over ATM" and are connected back-to-back with a fibre crossing the transmit and receive sockets. To run this protocol the ATM interfaces are on a different subnet than the ethernet interfaces i.e. they are on a dedicated subnet. Both nodes are configured as ATM ARP Servers (see also HP Configuration Guide, Chapter "Creating a back-to-back connection" and "Back-to-back with non-HP systems").

Configure it by logging in as root and running the command:

```
root# /opt/SUNWatm/bin/atmadmin
```

or, depending on your ATM software release:

```
root# /etc/opt/SUNWconn/atmadmin
```

The initial screen should list the "`ba`" interface is installed on the system.

At the "`Enter interface name or option`" prompt select "**`s`**".

Then select the interface to configure with "**`ba0`**".

Select "`Uni signalling`" with "**`u`**" and enter the value "**`3.1`**" and go back to previous menu with "**`p`**".

Select "`ILMI address registration`" with "**`i`**", disable it with "**`d`**" and go back to the previous menu with "**`p`**".

Select "`Physical layer`" with "**`y`**", enter "**`sonet`**", and go back to the previous menu with "**`p`**".

Then select "`Classical IP`" with "**`c`**", configure as standalone with "**`t`**", select "`IP address or hostname`" with "**`i`**", enter the system's hostname on the ATM interface, and select "`Destination IP address or hostname`" with "**`d`**", enter the peer's IP address or hostname. Then select "**`v`**" for PVC, and enter the PVC number which is in use at the other end of the back-to-back connection[2].

Select "**`x`**" to exit and "**`s`**" to save the configuration.

1. Complete this section *only* if you have decided to use Back to Back Classical IP over ATM as a network connection.
2. The preferred value is 103; what is important this that it is greater than 100, and is the same at both ends.

7.1.6 CONFIGURING THE DEFAULT INTERFACE FOR HP-UX 10.20 AND HP-UX 11.00[1]

As root run:

```
root# set_parms initial
```

At the "`Set System Parameters`" window, when asked "`Are you ready to link this system to a network?`", select "**`Yes`**".

At the "`Required Information`" window, select "**`Yes, Continue`**".

At the "`System Hostname`" window the hostname should already be correct, so select "**`OK`**" to continue and at the "`Confirm Hostname`" window, select "**`Yes`**".

Set the timezone and date and time following the prompts, and confirming by selecting "**`Yes`**" when appropriate[2].

At the "`System Internet Address`" window, enter the system's designated IP address and select "**`OK`**" and then, assuming the right address was entered, at the "`Confirm Internet Address`", select "**`Yes`**". Note that if set_parms is running with a graphical interface, it can happen that at this point it reverts to a text-only interface, but this does not prevent successful completion of this part of the configuration.

At the "`Additional Network Parameters`" window, select "**`Yes`**" and at the "`Subnet Mask and Gateway`" window, enter the designated subnet mask, gateway's fully-qualified hostname[3] and IP address, then select "**`OK`**", and, assuming correct data was entered, at the "`Confirm Network Parameters`" window, select "**`Yes`**".

At the "`Domain Name System`" window enter the domain name, DNS server fully-qualified hostname[4] and IP address for your own network[5]. Then select "**`OK`**" and, assuming the right data was added, at the "`Confirm DNS Parameters`" window select "**`Yes`**". If the DNS server is not contactable then a note may appear stating this and asking for additional confirmation that the DNS server settings are correct; the settings should be checked, but this situation does not imply an error.

At the "`Register name with name server`" window, select "**`Close`**".

At the "`Network Information Service`" window select "**`No`**".

On HP-UX 10.20 systems, there may appear a '`Configure Font Server`' window, select "**`Skip (Confirm) or [No]`**" and acknowledge the message which explains how to change this later.

set_parms may prompt for acknowledgment before rebooting the system, or ask if you want to reboot. If it does ask whether to reboot, enter "**`y`**" and let the system reboot. If it does not, then manually reboot the system with the command:

```
root# sync; sync; sync; reboot
```

This time, as the system boots up, there should be no '`FAIL`' messages, with the possible exception

1. Complete this section for HP-UX 10.20 and HP-UX 11.00 only.
2. To set the timezone to UTC, select any continent from the first menu, and '**`Unlisted Timezone`**' from the second, and then enter '**`CTU0`**'.
3. Only for HP-UX 10.20.
4. Only for HP-UX 10.20.
5. If you have more than one DNS server available, then you will have to manually insert it in /etc/resolv.conf later.

of for HP Disk Array Manager daemons.

If the machine uses an ATM interface and does not use Ethernet, then edit /etc/rc.config.d/net-conf, and check the following settings:

```
INTERFACE_NAME[0]=ela0
```

If the setting was incorrect, then change it and then reboot again.

Remember that the following commands can be used to change the configuration later:

```
root# set_parms initial
```

7.1.7 CONFIGURING THE DEFAULT INTERFACE FOR Solaris 2.6

Edit /etc/defaultrouter with the command:

```
root# vi /etc/defaultrouter
```

and add the IP address of the defaultrouter.

7.2 CONFIGURING HOST NAME LOOKUP SERVICES

Note: FIERA workstations in Paranal don't use any kind of name lookup service (see VLT-MAN-ESO-13640-1707 for details).

Run the command:

```
root# vi /etc/resolv.conf
```

and ensure it has the following form:

```
domain <your_domain_name>
nameserver <DNS_server's_IP>
```

If there is more than one DNS server available on your network then specify it's IP address next to the first DNS server's (with a space to separate the IP addresses).

7.2.1 /etc/hosts

The correct format for an entry in /etc/hosts is:

```
<IP_address> <fully_qualified_hostname> <optionally_unqualified_hostname_and_aliases>
```

Therefore, ensure that /etc/hosts contains at least:

```
127.0.0.1               localhost                               loopback
<system_IP_address>     <fully_qualified_system_hostname>     <unqualified_system_hostname> <optional_aliases>
```

If the file also contains entries for DNS server or default gateway then convert to the same format.

7.2.2 /etc/nsswitch.conf FOR HP-UX 10.20

As root, edit /etc/nsswitch.conf and if necessary adjust the settings to those below:

```
hosts: files[NOTFOUND=continue UNAVAIL=return] dns[1]
hosts: files[2]
protocols: files
services: files
networks: files
netgroup: files
rpc: files
```

7.2.3 /etc/nsswitch.conf FOR HP-UX 11.00

As root, edit /etc/nsswitch.conf and if necessary adjust the settings to those below:

```
aliases: files
automounter: files
group: files
hosts: files [NOTFOUND=continue UNAVAIL=return] dns[3]
hosts: files[4]
netgroup: files
networks: files
passwd: files
protocols: files
publickey: files
rpc: files
services: files
```

1. Use this ‘hosts’ entry if you have a DNS server available.
2. Use this ‘hosts’ entry if you do not have a DNS server available.
3. Use this ‘hosts’ entry if you have a DNS server available.
4. Use this ‘hosts’ entry if you do not have a DNS server available (e.g., FIERA workstations in Paranal).

7.2.4 /etc/nsswitch.conf FOR Solaris 2.6

As root, edit /etc/nsswitch.conf and if necessary adjust the settings to those below:

```
passwd: files
group: files
hosts: files[1]
hosts: files dns[2]
hosts: files nis[3]
networks: files
protocols: files
rpc: files
ethers: files
netmasks: files
bootparams: files
publickey: files
netgroup: files
automount: files
aliases: files
services: files
sendmailvars: files
```

1. Use this setting for the ‘hosts’ entry if you do not have DNS or NIS available.
2. Use this setting for the ‘hosts’ entry if you have DNS available.
3. Use this setting for the ‘hosts’ entry if you have configured the machine as a NIS client.

7.2.5 CONFIGURING A CACHING-ONLY NAMESERVER FOR HP-UX 10.20 AND HP-UX 11.00[1]

Running a caching-only nameserver can provide hostname lookup speeds which are faster than either a central DNS server or use of /etc/hosts, while still providing a zero-maintenance DNS system.

To configure the system as a caching-only name server run sam, select "**Network and Communications**", then "**DNS (BIND)**", then "**DNS Local Name Server**". A note should appear explaining that the system is currently not configured as a name server. This can be dismissed by selecting "**OK**".

Select "**Actions**" and then "**Configure Caching-Only Server**". A note may appear explaining that the current DNS boot file has been saved. This can be dismissed by selecting "**OK**".

At the "Specify a Root/Parent Domain" window, select "**Use Default Cache File**" and select "**OK**". If prompted, any existing /etc/named.data/db.cache can be safely overwritten. When prompted to start named, select "**Yes**"[2]

Edit /etc/resolv.conf to only contain:

```
domain <your_DNS_domain>
nameserver 127.0.0.1
```

Edit /etc/named.boot and add the following line:

```
forwarders <your_site's_DNS_server(s)>
```

1. Do not do this in Paranal, consortia, or VCM.
2. There appears to be a bug in sam which results in a blank message requiring acknowledgement followed by a repeat of the previous question.

7.2.6 CONFIGURING A CACHING-ONLY NAMESERVER FOR Solaris 2.6[1]

Running a caching-only nameserver can provide hostname lookup speeds which are faster than either a central DNS server or use of /etc/hosts, while still providing a zero-maintenance DNS system.

To configure the system as a caching-only name server set the 'hosts' entry in /etc/nsswitch.conf as below:

```
hosts: files dns
```

Insert the ESO-VLT-VLTSW-SUN-SUNOS-56-PATCHES CDROM and run:

```
root# DNSIP="<IP_addresses_of_your_DNS_servers>"
root# FQHN="<your_system's_fully-qualified_hostname>"
root# cd /cdrom/cdrom0/named
root# mkdir -p /var/named
root# sed "s/DNSIP/$DNSIP/" < named.boot > /etc/named.boot
root# sed "s/FQHN/$FQHN/" < db.127.0.0 > /var/named/db.127.0.0
root# cp db.cache /var/named
root# vi /etc/resolv.conf
```

and edit /etc/resolv.conf to only contain:

```
domain <your_DNS_domain>
nameserver 127.0.0.1
```

Finally, in order for the changes to take effect, stop and start named as follows:

```
root# ps -ef | grep named
root# kill <named_pid>
root# in.named
```

1. Do not do this in Paranal, consortia, or VCM.

7.3 TESTING NETWORK CONNECTIVITY

Login as root and run:

```
root# sync; sync; sync; reboot
```

When the machine is back up, then log in as root and verify that each network interface is correctly configured with:

```
root# netstat -nr
root# ifconfig <each_interface_in_turn>
root# ping <first_hop_on_each_interface>
```
[1]

7.3.1 TESTING THE DEFAULT NETWORK INTERFACE

Determine another system at your site (not on the other side of a firewall) which is on a different subnet and run:

```
root# ping <other_system>
```

7.3.2 TESTING THE ATM CONFIGURATION[2]

There are a number of troubleshooting and diagnostic hints in the ATM manuals. Once the VLT Common Software is installed, you can make some performance benchmarks using:

```
vltmgr% dxfBenchmark
```

1. Note that HPs using ATM in back-to-back configuration, cannot ping their own interfaces unless the remote end is correctly configured too.
2. Skip this section if the system does not have a configured ATM interface.

7.4 CONFIGURING NETWORK SERVICES

7.4.1 CONFIGURING NFS ON HP-UX 10.20 AND HP-UX 11.00[1]

Using the VLT Common Software requires a system to be configured both as an NFS client and as an NFS server. This latter requirement also facilitates X terminals retrieving server and font files by NFS.

As root run sam, and select "**Networking and Communications**", "**Network File Systems**" and "**Exported Local File Systems**".

A note may appear saying that no file systems are currently exported. This can be dismissed by selecting "**OK**".

Then select '**Actions**' and '**Enable NFS Server**'.

Then select '**List**', '**Mounted Remote File Systems**', '**Actions**' and '**Enable NFS Client**'. If the automounter is not now also reported as '`Running using /etc/auto_master`', then select '**Actions**' and '**Enable Automounter**'. If it fails to start, then you should check after the next reboot that it starts.

Then exit sam and edit /etc/auto_master to align it with the lines below, removing any other lines:

```
/home /etc/auto_home
```

and run:

```
root# touch /etc/auto_home
root# vi /etc/rc.config.d/nfsconf
```

and edit the definitions of the following variables to align it with the values set in the contains the lines:

```
AUTOFS=1
AUTOMOUNT=1
```

Create the standard temporary mount point with:

```
root# mkdir /mnt
```

If the VLTSW directories do not exist, then create them. Depending on how the disks were partitioned the command sequence to do this may vary. But if they do not exist, then the commands to create them will probably be something like this:

```
root# cd /diska
root# mkdir vlt vltdata data introot insroot
root# cd /
root# ln -s diska/vlt diska/vltdata diska/data .
root# ln -s diska/introot diska/insroot .
```

1. Complete this section only for HP-UX 10.20 and HP-UX 11.00.

Add entries to /etc/exports for the VLTSW directories and be sure to always specify the physical path, e.g.:

```
/diska/vlt -access=localhost
/diska/vltdata -access=localhost
/diska/data -access=localhost
/diska/introot -access=localhost
/diska/insroot -access=localhost
```

Of course if /vlt, /vltdata and /data are actual directories or partitions, you would use something like:

```
/vlt -access=localhost
/vltdata -access=localhost
/data -access=localhost
/diska/introot -access=localhost
/diska/insroot -access=localhost
```

7.4.2 CONFIGURING NFS ON Solaris 2.6[1]

Using the VLT Common Software requires a system to be configured both as an NFS client and as an NFS server.

Edit /etc/auto_master to align it with the lines below, removing any other lines:

```
/home /etc/auto_home
/net -hosts -nosuid,nobrowse
```

and run:

```
root# true > /etc/auto_home
```

If the VLTSW directories do not exist, then create them. Depending on how the disks were partitioned the command sequence to do this may vary. But if they do not exist, then the commands to create them will probably be something like this:

Note: FIERA uses /export/home, so modify these entries accordingly (see VLT-MAN-ESO-13640-1707 for details).

```
root# cd /diska
root# mkdir vlt vltdata data introot insroot
root# cd /
root# ln -s diska/vlt diska/vltdata diska/data .
root# ln -s diska/introot diska/insroot .
```

Add entries to /etc/dfs/dfstab for the VLTSW directories, e.g.:

```
share -F nfs -o rw=localhost /diska/vlt
share -F nfs -o rw=localhost /diska/vltdata
share -F nfs -o rw=localhost /diska/data
share -F nfs -o rw=localhost /diska/introot
share -F nfs -o rw=localhost /diska/insroot
```

Of course if /vlt, /vltdata and /data are actual directories or partitions, you would use something like:

```
share -F nfs -o rw=localhost /vlt
share -F nfs -o rw=localhost /vltdata
share -F nfs -o rw=localhost /data
share -F nfs -o rw=localhost /diska/introot
share -F nfs -o rw=localhost /diska/insroot
```

1. Complete this section only for Solaris 2.6.

7.4.3 NTP SERVERS FOR HP-UX 10.20 AND HP-UX 11.00[1]

Login as root, run **sam** and select "**Time**", then "**NTP Network Time Sources**". An alert window may appear explaining that there are currently no peers or servers defined, dismiss the window by selecting "**OK**". Then select "**Actions**", then "**Add remote server or peer**" and set parameter values as follows:

```
Hostname: <designated_NTP_server>
<*> Server
< > Peer
[X] Preferred Server
NTP Version: 3
```

Then select "**OK**", then "**Actions**" and "**Start NTP**". Then exit from sam.

7.4.4 NTP SERVERS FOR Solaris 2.6[2]

Log in as root and add the following single line to /etc/inet/ntp.conf, which probably does not exist yet:

```
server <fully-qualified_hostname_of_NTP_server> version 3 prefer
```

and start the NTP daemon with the command:

```
root# /etc/init.d/xntpd start
```

1. Complete this section only for HP-UX 10.20 and HP-UX 11.00 and if there is no NTP server available on your network, skip this section.
2. If there is no NTP server available on your network, skip this section.

7.4.5 DISABLING SENDMAIL DAEMON ON HP-UX 10.20 AND HP-UX 11.00[1]

If you wish to disable inbound mail for security then as root edit the file /etc/rc.config.d/mailservs, and set the following values:

```
export SENDMAIL_SERVER=0
```

and to enable periodic outbound queue processing (for mails whose first delivery attempt failed), run the following commands:

```
root# crontab -e
```

Add the following crontab entry:

```
0,10,20,30,40,50 * * * * /usr/sbin/sendmail -q
```

7.4.6 DISABLING SENDMAIL DAEMON FOR Solaris 2.6[2]

If you wish to disable inbound mail for security then as root run the following commands:

```
root# cd /etc/rc2.d
root# mv S88sendmail OFF.S88sendmail
```

and to enable periodic outbound queue processing (for mails whose first delivery attempt failed), run the following commands:

```
root# EDITOR=vi
root# export EDITOR
root# crontab -e
```

adding the entry:

```
0,10,20,30,40,50 * * * * /usr/lib/sendmail -q
```

7.4.7 MSQL TCP PORT CONFIGURATION ON HP-UX 10.20 AND HP-UX 11.00

HP-UX defines a default TCP port for MSQL programs to use when accessing an MSQL across a network. This default conflicts with that in later releases of MSQL. Therefore edit /etc/services with the command:

```
root# vi /etc/services
```

and comment out the entry for the msql service as below:

```
#msql 1111/tcp # Mini SQL database server
```

1. Within ESO this is obligatory.
2. Within ESO this is obligatory.

8 MISCELLANEOUS CONFIGURATION

8.1 REMSH CONFIGURATION IN ESO/DEV AND ESO/VCM[1]

Within TSW a program called ‘rocon’ is used to run identical commands on many systems rapidly, and to define clients for passwd file distribution. This program relies on remsh access to the system. Also to facilitate easier admin, root remsh access is required from certain machines. Therefore, add the following entries to /root/.rhosts:

```
localhost root
<unqualified_system_name> root
<fully_qualified_system_name> root
te16.hq.eso.org root
```

Add the host to the ‘rocon’ database, by running the following command on te16, and adding an appropriate entry:

```
te16# rocon -e
```

1. This is only applicable within ESO/DEV and ESO/VCM.

8.2 SOFTWARE SERVER CONFIGURATION IN ESO/DEV[1]

Edit /etc/auto_master and add the following lines:

```
/-              /etc/auto_direct
```

and the following to /etc/auto_direct:

```
/usr/server  -ro,soft,bg,suid  </os-specific_/usr/server_server>:/usr/
server
/software    -ro,soft           </os-specific_/software_server>:/software
/vltsccm     -rw,soft           te13:/vltsccm
```

and run the command:

```
root# mkdir /usr/server /software /vltsccm
root# mkdir /var/tmp/pure-cache[2]
root# chmod 777 /var/tmp/pure-cache
```

Then log in to the 'OS-specific /usr/server server' (te16, te5, te7 or te43) and add this system to the exports list (in /etc/exports or /etc/dfs/dfstab) for /usr/server, afterwards running the command:

```
uss# exportfs -av[3]
uss# shareall[4]
```

Repeat for the 'OS-specific /software server' (te13, te5, te7 or te43).
And finally repeat for the /vltsccm server (te13).

1. The path names mentioned here are only applicable within ESO/DEV, but other sites may also offer access to additional software. Consult your local system dministrator for more information.
2. This is for one of the packages under /software in ESO/DEV.
3. For HP-UX 10.20 and HP-UX 11.00 servers.
4. For Solaris 2.6 servers.

8.3 CONFIGURING USER ACCOUNTS, GROUPS AND AUTO_HOME ENTRIES IN ESO/DEV[1]

Passwords in ESO/DEV are distributed using a script. This script relies on rocon. To facilitate this, log in to te16 and run:

```
te16# update_nonis_slaves -p -g -a -r
update_nonis_slaves: WARNING: DO NOT INTERRUPT THIS PROCESS OR FILES
COULD BE CORRUPTED!
Continue [n]: y[2]
update_nonis_slaves: WARNING: ignoring duplicated uid in passwd file
(host=<hostname>, uid=0, login #1=smtp, login #2=root)
update_nonis_slaves: WARNING: ignoring shadow entry with no corresponding
passwd entry (shadow login=smtp)
te16# cd /usr/server/src/src/distribution/passwd_prog
te16# remsh <system_name> mv /usr/bin/passwd /usr/bin/passwd.orig
te16# rm -f control/all_done control/<system_name>.rcped
te16# vi Makefile
```

and add this system to the Makefile. Then run:

```
te16# make
```

1. This section is only applicable within ESO/DEV.
2. Note that this takes several minutes to complete.

8.4 CONFIGURING ROOT CRONTAB DISTRIBUTION IN ESO/DEV

Root runs several cronjobs on ESO / DEV systems. The crontabs for all systems are held centrally.

For HP-UX 10.20 and HP-UX 11.00 only, log in as root and edit the file /var/adm/cron/cron.allow and add the entry '**root**' if it is not already there.

Log in to te16 and run:

```
te16# cd /usr/server/src/src/distribution/crontab_root
te16# cp <host_with_similar_role>.crontab <name_of_system>.crontab
te16# vi <name_of_system>.crontab
```

and edit the file to suit local needs. Then run:

```
te16# vi Makefile
```

and add an entry for this system to the file, and then run:

```
te16# touch <name_of_system>.crontab
te16# make
```

8.5 CONFIGURING LOGINS FOR INTERGRATION LOOPS IN ESO/DEV[1]

To facilitate centralised auto_home maps, while permitting locally defined home paths for a few disk-space-hungry logins used during the integration loops, run the following commands:

```
root# mkdir /homelink /diska/home
root# for ID in vltswppc vltnoccs vltsw vltsw68k vltlite; do
> mkdir /diska/home/$ID
> ln -s /diska/home/$ID /homelink/$ID
> chown $ID:vlt /diska/home/$ID
> done
```

Then, depending on the OS run:

```
root# vi /etc/dfs/dfstab[2]
root# vi /etc/exports[3]
```

and add an entry for /diska/home granting access to LCUs.

1. This is only applicable within ESO/DEV and only to specific machines within ESO/DEV.
2. Solaris 2.6 only
3. HP-UX 10.20 and HP-UX 11.00 only

8.6 ROOT USER CONFIGURATION IN ESO/DEV[1]

Run the following commands:

```
root# mkdir /root/bin
root# vi /root/.profile
```

and add the following the bottom of root's .profile:

```
PATH=$HOME/bin:$PATH:/usr/server/bin:/usr/server/sbin
MANPATH=$MANPATH:/usr/server/man
```

1. The paths specified are only applicable within ESO/DEV, but other sites may wish to tailor these files in accordance with the paths to locally added software on their systems, e.g. /usr/local/bin, /usr/local/man, etc.

8.7 RWHOD CONFIGURATION ON ESO/DEV ON HP-UX 10.20 AND HP-UX 11.00

To provide users with information on where to find lowest loaded systems, edit /etc/rc.config.d/netdaemons and set:

```
export RWHOD=1
```

8.7.1 RWHO CONFIGURATION FOR Solaris 2.6

To provide users with information on where to find lowest loaded systems, insert the ESO-VLT-VLTSW-NOV2000-SUN-SUNOS-56-PATCHES CDROM and run:

```
root# cp /cdrom/cdrom0/misc/rwhod /etc/init.d
root# ln -s /etc/init.d/rwhod /etc/rc3.d/S99rwhod
root# ln -s /etc/init.d/rwhod /etc/rc0.d/K00rwhod
root# mkdir /var/spool/rwho
root# eject
```

8.8 ISSUE AND MOTD CONFIGURATION IN ESO/DEV

/etc/motd and /etc/issue are centrally managed files within ESO/DEV. To facilitate their distribution, on te16 run:

```
te16# cd /usr/server/src/src/distribution/issue
te16# touch <system_name>.issue
te16# vi Makefile
```

and add the name of the system to the file. Then run:

```
te16# make
te16# cd /usr/server/src/src/distribution/motd
te16# touch <system_name>.motd
te16# vi Makefile
```

and add the name of the system to the file. Then run:

```
te16# make
```

On HP-UX 10.20 and HP-UX 11.00 systems only edit /etc/inetd.conf and change the entry for 'telnet' to:

```
telnet stream tcp nowait root /usr/lbin/telnetd telnetd -b/etc/issue
```

8.9 REBOOT TO ACTIVATE MISCELLANEOUS CHANGES

To make effective the changes listed in this section so far, now reboot the system with the command:

```
root# sync; sync; sync; reboot
```

8.10 CONFIGURING PRINTERS IN ESO/DEV[1]

Printer lists are managed centrally within ESO / DEV. To install all known printers log in to te16 and run:

```
te16# addprn <system_name> all
```

8.11 SENDMAIL CONFIGURATION IN ESO/DEV[2]

The system has already been configured not to relay mail and to flush the mail queue periodically. The ESO / DEV machines require this in order to relay vital system administration information via mail. There remains only to configure the system to route mail via ESO's mail hub. To do this run the following commands as root on te16:

```
te16# rcp <system_with_same_OS_as_new_system>:/etc/mail/sendmai.cf /tmp
te16# rcp /tmp/sendmail.cf <system_name>:/etc/mail
```

1. This section is only applicable within ESO/DEV. Other sites should refer to the lpadmin(1) manual page or local system administrators.
2. This section is only applicable with ESO/DEV.

8.12 100 Mbit/Sec NETWORK CONFIGURATION FOR HP-UX 10.20 AND HP-UX 11.00

If the machine is being connected with TPE, not via a hub, to a 100 Mbit/sec switch connection, and it is desirable not to accept a lower speed negotiated with the switch, then edit /etc/rc.config.d/hpbase100conf and ensure the settings are as below:

```
HP_BASE100_INTERFACE_NAME[0]=lan0
HP_BASE100_STATION_ADDRESS[0]=
HP_BASE100_SPEED[0]=100HD
```

8.13 OPTIMISING PERFORMANCE FOR HEAVY NFS USE FOR HP-UX 10.20 AND HP-UX 11.00 ONLY

If the system is expected to receive heavy NFS then edit /etc/rc.config.d/nfsconf and set:

```
NUM_NFSD=16
NUM_NFSIOD=8
```

8.14 RAID DISK CONFIGURATION FOR SYSTEMS WITH MTI RAID ARRAYS

If the system is attached to an MTI RAID disk array, then install the MTI software and then edit /sbin/init.d/das*, adding ‘start_msg’ and ‘stop_msg’ branches to the ‘case’ statement.

8.15 MONDSK CONFIGURATION IN ESO/DEV

On the OS-specific /usr/server server, as root run:

```
uss# cd /usr/server/etc/mondsk
uss# ls
uss# cp <another_system>.conf <system_name>.conf
uss# vi <system_name>.conf
```

and change the thresholds accordingly. Test the configuration on the new system with the command:

```
root# mondsk -e
```

8.16 KERNEL CONFIGURATION FOR te3

Set the kernel parameter ‘maxdsiz’ to 512 Kb.

8.17 SHARED ACCOUNT CONFIGURATION FOR ESO/PARANAL AND ESO/VCM FOR HP-UX 10.20 AND HP-UX 11.00

Often accounts are shared amongst several people in these environments. To prevent the login reaching the per-user process limit, the kernel needs to be modified as follows.

Log in as root and from SAM’s top menu level, select “**Kernel Configuration**”, then “**Configurable Parameters**”, select each of the items below in turn and then select “**Actions**” and “**Modify Configurable Parameter**” and set its value as specified below:

maxuprc	**512**[a]

a. Paranal systems generally run the jobs of many users all under one account.

To make all the changes effective, select “**Actions**” and then “**Create a new Kernel/Process New Kernel**” and at the “Confirmation” window select “**Yes**”. At the “reboot the system” window, select:

```
Move kernel into place: yes
Overwrite /stand/system: yes
```

and confirm by selecting “**OK**”.The system will then reboot.

8.18 ADDING A GRAPHICS CONSOLE FOR HP-UX 10.20 AND HP-UX 11.00[1]

Ensure the keyboard is attached. Reboot the system and interrupt the boot sequence to get to boot admin mode. Determine the current graphics console hardware path with the command:

```
> in all
```

Set the console path with the command:

> **path con <*graphics_console_hardware_path*>**

For example:

```
> in all

MONITOR INFORMATION
Slot #        HPA        State    Resolution   Frequency     Class
---------   ----------   -------   ----------   ---------   ---------
graphics0   f8000000     Empty
graphics3   f4000000     Present   1280x1024    72Hz
graphics4   f6000000     Present   1280x1024    60Hz
graphics1   fa000000     Empty
Current Console Path:       core.SERIAL_1.9600.8.none
Stable Store Console Path:  GRAPHICS4

> path con graphics4
> path con graphics3
```

Either of these console paths are valid for this example.

Ensure that the keyboard is connected and then reset the machine with the command:

```
> reset
```

If this is the first time since installation that a keyboard is attached then the system will prompt '`Enter the number of the language you want:`' Then enter the correct language and press **ENTER** to confirm. The machine then boos in the normal way. CDE should start.

8.19 DOUBLE-SCREENING FOR HP-UX 10.20

Use sam to configure this.

8.20 DOUBLE-SCREENING FOR HP-UX 11.00

As root run sam. Select '**Display**', 'X **Server Configuration**'. If a note window appears explaining how to select displays, read it and dismiss it by selecting '**OK**'. Then select both displays, select '**Action**' and '**Modify Multi-Screen Layout**' and immediately select '**OK**'. Then select '**File**', '**Save**' and accept the default name X0screens by selecting '**OK**'. At the confirmation request select '**OK**'. The X server then restarts and the session is logged out. Logging back in should result in the CDE desktop spanning two monitors.

1. Complete this section if you wish to revert from an ASCII terminal console to the graphics screen and keyboard.

8.21 MANUAL PAGE FIXES

Generate the 'whatis' database so that the 'man -k' command (or 'apropos') works by running:

```
root# catman -w &
```

8.21.1 FADSCAN CONFIGURATION IN ESO/DEV

On the OS-specific /usr/server server (te7, te43, te16 or te5), as root run:

```
uss# cd /usr/server/etc/fadscan
uss# ls
uss# cp <another_system>.conf <system_name>.conf
```

Edit the file as appropriate and then on the new system run:

```
root# mkdir -p /var/adm/fadscan /var/local/fadscan[1]
root# mkdir -p /var/log/fadscan /var/local/fadscan[2]
root# fadscan -i -y `uname -n`
```

1. HP-UX 10.20 and HP-UX 11.00 only.
2. HP-UX 10.20 and HP-UX 11.00 only.

9 UPGRADING TO MAR2001 FROM PREVIOUS RELEASES

9.1 UPGRADING FROM NOV2000 TO MAR2001

Since the last public release, the policy regarding OS patching defined by ESO has changed from one of ‘patch only what is broken’ to ‘apply all patches in the interests of increased security’. on, As a result of this, the disk space requirements for this release are considerably higher than could be accommodated using existing partitioning schemes.

For this very reason, the only viable upgrade is from the NOV2000 OS to the MAR2001 OS. If you’re absolutely sure that your workstation has been installed as per the previous issue of the Combined OS Installation Manual (issue 1.0), proceed as follows:

- **HP-UX 10.20**
  No change required.
-
- **HP-UX 11.00**
  Repeat sections 6.4.2 and 6.4.4.
-
- **Solaris 2.6**
  No change required.

IMPORTANT: This is the only available upgrade path! If your workstation has been installed with any other OS release (OCT99, FEB2000, etc.) you’ll have to do an install from scratch -- be sure to backup any valuable data before getting started!